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Sports and Fitness

FITNESS FOR THE FUN OF IT

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Exercise – who needs it?

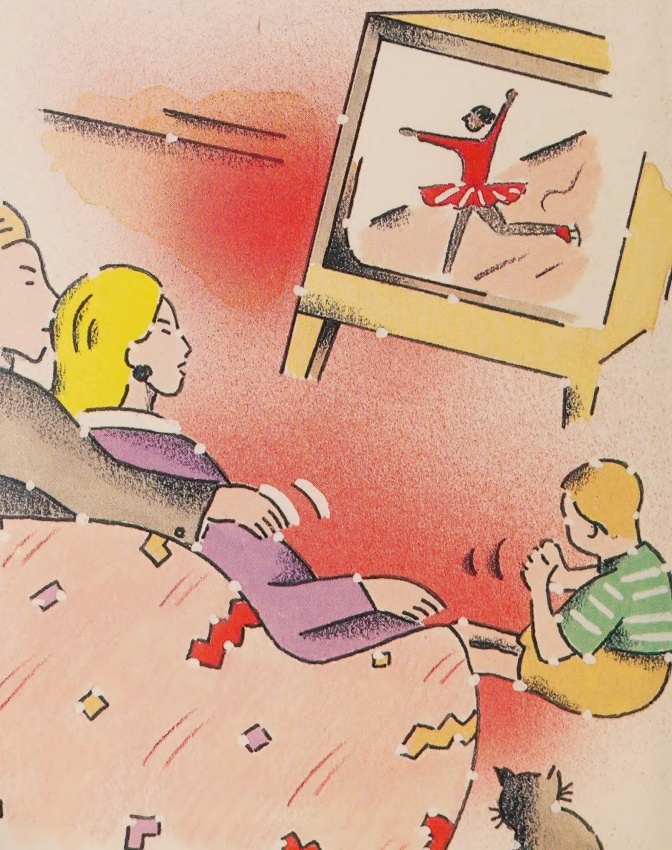
Very simply, everyone needs it! Our bodies were made for activity, and without regular exercise, they just won't be maintained and able to function at an efficient level.

Most of us go through our youth with a hop, skip and jump, and it all seems to come as naturally as breathing. But as the years go by, we tend to fall gradually into lazier ways. This is partly a problem of the society we live in. We drive cars instead of walking. We watch television instead of enjoying a physical hobby. We are spectators at sports events, rather than participants. Our jobs

are mental rather than manual; and the world is filled with labour-saving devices. Today, our bodies are doing less and less. And the less we do, the harder it becomes to do anything. It's the old saying: if you don't use it, you lose it.

But getting back into shape needn't be an enormous effort. It needn't be unpleasant. It can be, and in fact, should be fun!

If you're between the ages of 1 and 70, and wish to start exercising your way back to fitness, this booklet is for you.

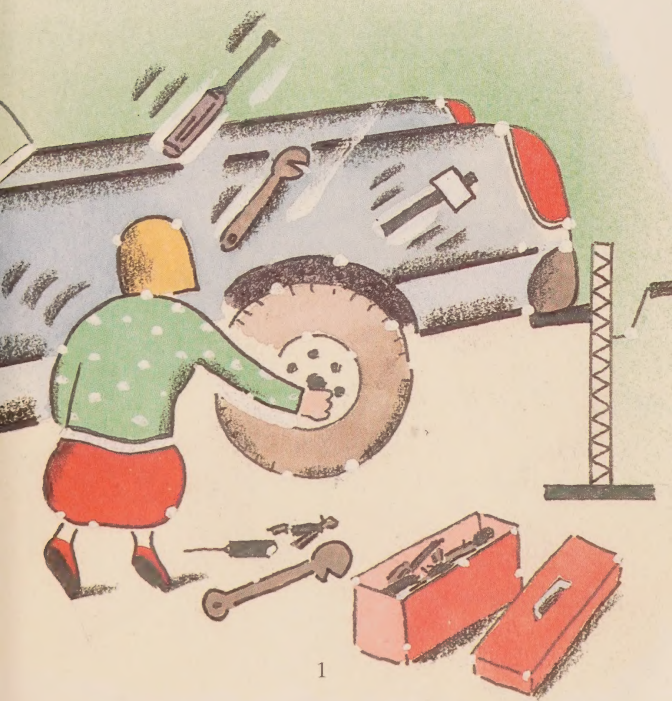


The importance of being fit

Being fit is like holding the high cards up your sleeve. It gives you a reserve of energy that's ready to use at the end of a working day. It's this energy reserve that allows you to do things you enjoy – shopping, dancing, skating, partying, climbing stairs to an event, such as a ball game, participating in an activity or just simply playing for a while with the children. We all know people who seem to get tremendous enjoyment out of life. They have a tremendous vitality and zest for living – whether it's the thrill of skiing down a hill, or the joy of climbing up an escarpment to discover a superb view. These are rewards you'll never get from

any television set, movie theatre, or sedentary pursuit. They're the rewards of participating, of building up an energy reserve. You've heard it before but it bears repeating: exercise may not add years to your life, but it certainly adds life to all your years.

There are other reasons why fitness is important. You might say it has a three-fold function. It permits us to continue performing activities of various kinds throughout our lives. It gives us the ability to take up new activities, increasing our options as to what we would like to do. And it gives us the ability to handle emergency situations – such as running to a phone, or changing a tire.



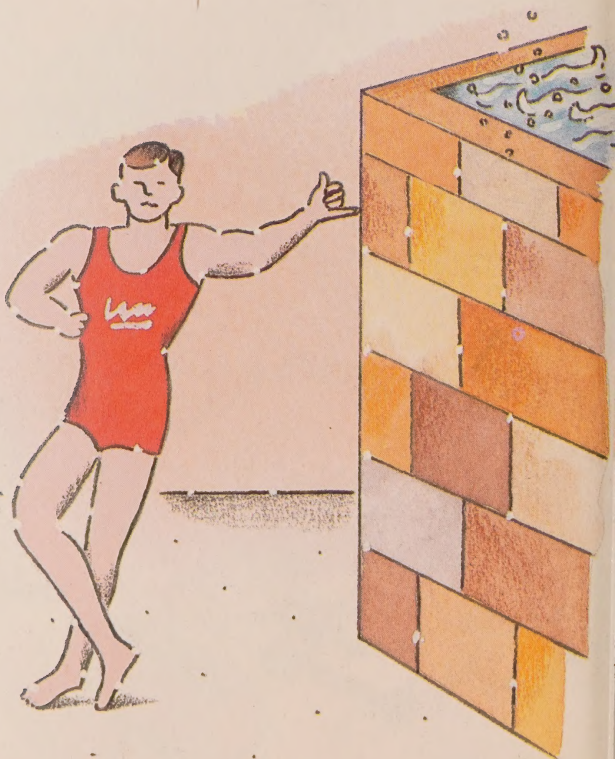
Imagine that your ability to work and play, your present level of endurance, is represented by the holding capacity of a dam (see diagrams).

1. Pushing against this dam are many stressful factors that tend to make us tired – a difficult day at work, physical effort, smoking, overweight, age, a long drive home, a diet high in fats.

2. If the dam is not too high, a rising of stress – such as changing a tire on a busy highway, lifting a boat, or playing with the children or even just listening to them – can cause water to flow over the dam and eventually break it. This overflow, or dam-burst, represents the symptoms of fatigue. Your endurance and strength, or the height of your dam, was not sufficient to withstand the extra stress.

3. By exercising regularly, you'll be building this dam – your endurance level and strength to new heights.

The fitness dam



The road to fitness

There are two major factors that will help you achieve and maintain a proper level of fitness – good nutrition and sufficient exercise.

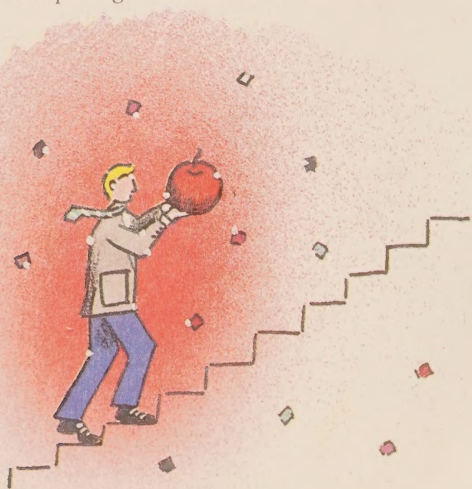
First, an important word about nutrition. Although this pamphlet is primarily about exercise, exercise alone is not always the answer. If you are overweight – and half of all Canadians are – exercise alone is a very slow technique for losing weight. If, for instance, you drink one glass of beer or eat one small piece of pizza or take one piece of toast with jam or eat ten french fries, then you've just consumed calories equal to about 15 minutes of badminton or jogging, 30 minutes of golf, or an hour of gardening.

It is very easy to exceed our food requirements of approximately 2100 and 2900 calories (female and male) per day. A most healthful aspect of exercise is that it consumes calories and if we are quite active we can eat almost what we like and not concern ourselves with vitamin supplements. From the large amount of food passing

through the digestive system will extract the necessary foodstuff naturally.

A combination of diet and exercise is the best way to slim down. And you'll feel better for it! The effort of just carrying all that extra fat around is fatiguing – so much so, that overweight people generally tend to avoid exercise of any kind, whether it's standing at a party or taking the stairs instead of the escalator. Yet once a proper exercise program is started, it plays a very important part in weight control. Increased activity will tend to offset the decreased rate at which we burn food (metabolic rate) which occurs with dieting. The activity will maintain our metabolic rate.

More than that: regular exercise plays a role in the prevention of cardiovascular disease. Daily activity will lower blood fat levels (triglycerides) and can also prevent increases in blood cholesterol levels following heavy meals rich in saturated fat (mostly meat fats). Exercise can influence the nature of cholesterol and this too is beneficial.



Something new!

Regular moderate exercise can reduce blood pressure and as high blood pressure is a major risk factor in heart disease – it is unwise to be inactive. We also know that lack of exercise leads to weak musculature, which in turn can lead to lower back pain, a common complaint of the time and we know that those who are fit return to normal activity following a back injury much sooner than those who are sedentary.

Two conditions that cause us to age prematurely are osteoporosis (a bone weakening condition) and diabetes. Both these conditions can be improved with regular physical exercise. Also, exercise can improve your ability to endure stress. At first, the exercise may seem to be just one more stress for your body. But in a short time you will find that your heart rate, an indicator of stress, does not increase so rapidly. Your body is coping more easily with the stress of exercise. Soon, this ability to cope with stress will spill over into other situations.

Physical activity, by virtue of change of routine, can be a stress-reducing mechanism. Less measurable, but equally important, is the sense of well-being you get after exercise. It is believed that natural chemicals are released which helps to explain the sensation. There is an afterglow, a feeling of total ease and relaxation, that comes after any bodily activity such as hiking, golf on a hilly course or a brisk walk. It's a sense of feeling good. And isn't that what it's all about?

Upper body strength gains can be considerable. After answering the questions on page 7 try the chin-up and push-up test. If you can pull yourself up once or perform ten pushups (body straight, knees off the floor) then you have a minimum level of upper body strength and as the push-up is repetitive you have muscular endurance as well.

As mentioned earlier, we need to increase the height of our dam (our reserve, our strength reserve) to prepare us for those unforeseen incidents such as pulling-pushing ourselves onto our feet after falling or wrestling with a snowmobile which is stuck in the slush or trying to right ourselves after falling on a ski-hill or simply to offset the time process whereby our bones lose their calcium and with the loss, lose strength. By pulling and/or pushing ourselves up or even attempting to do so we are employing muscles such as biceps, triceps, and those on the shoulder and back to fight gravity. This muscular activity promotes blood flow to bone and helps to slow down the loss of calcium and to maintain the bones' strength as well as that of the muscles.



"Stiffness" of muscles has been linked to too much sugar. Exercise can lower blood sugar levels and reduce the amount available for binding with proteins. This binding is thought to be related to the stiffness which appears in our movement especially as we get older.

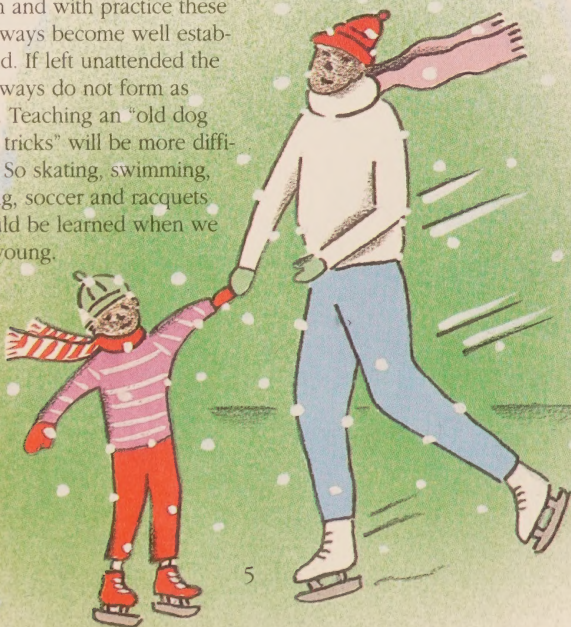
Often our performance in activities we once did readily as a child seems very awkward to the point where we are afraid to try them. To continue to do some of these activities we need to continue to perform them such as bending to bowl, or using short sprints when playing raquet sports; moving in and out, side to side, in a boat; getting up on skies or snowshoes or skating on the rink.

It is now very evident that children need to exercise for their own sake as well as for their future. There are critical periods when we learn activities. Waiting until "we are older" makes them that much more difficult to learn. A networking takes place in the brain and with practice these pathways become well established. If left unattended the pathways do not form as well. Teaching an "old dog new tricks" will be more difficult. So skating, swimming, skiing, soccer and racquets should be learned when we are young.

A second reason is that if children learn skills and exercise habits when they are young, they are likely to continue to perform them when they reach adulthood. In addition to developing skills when we are young (catching, kicking, throwing, running, striking, swimming, skating) strength development is also to be encouraged. Strength development requires bones and muscles to become stronger. As we age our bone mass, as mentioned, will decrease.

However the greater the bone mass we have as a child, the more we will have when we are adults and older adults. Exercise in our youth is one of the most important preventative measures we can take to slow down this degenerative process.

A summary of the benefits of exercise is listed on appendix I with references available on request.



Before you begin

Never undertake an exercise program without asking yourself the following questions.

1. Do you often feel faint or have spells of severe dizziness?
2. Do you frequently have pains in your heart and chest?
3. Has your doctor ever said you had heart trouble?
4. Has a doctor ever said your blood pressure was too high?
5. Has your doctor ever told you that you have a bone or joint problem such as arthritis that has been aggravated by exercise, or that might be made worse with exercise?
6. Is there any other good physical reason why you should not follow an activity program even if you wanted to?
7. Are you over age 65 and not accustomed to vigorous exercise?

If you have answered yes to any of these questions, you should have a thorough physical examination and receive your doctor's approval before beginning an exercise program.

If you have answered no to all of the questions, read on and join in. If you have the opportunity you may want to take an exercise test before commencing. The purpose of this test is to measure your fitness level in order to help determine the amount of exercise you can safely undertake - it is not designed to rule out the presence or absence of heart disease.

There is a level of exercise that will increase heart muscle strength. This is related to your reserve (page 2).

When you have an exercise test, ask to have your heart rate continually monitored and to be alerted when your rate is high enough to begin to increase your heart strength. Note how you "feel" while exercising at this level. At this level you should be able to carry on a conversation. The next time you are active (such as walking, jogging, swimming) try to experience the same sensation for at least five minutes. After a few weeks extend this period (See page 9).



Six rules for everyone

There are some general rules that apply to everyone who wants to exercise, whether fit or fat, young or old, male or female. Let's look at these rules carefully.

1. Begin slowly. No, you can't expect to throw yourself into strenuous activity the way you did in your salad days! Even after a few years of inactivity, sudden bursts of exercise at too vigorous a level can result in ankle injuries, sore joints, aching muscles – and instant discouragement.

2. Be capable of talking while exercising. If you can't talk, you're overdoing it! When you're exercising alone, you could try counting, unless you'd rather recite Omar Khayyam.

3. No wheezing, please. If you're making a loud wheezing sound, you're exercising too hard. While getting breathless for a period every day is a good habit, you shouldn't be so vigorous that someone ten feet away can hear you breathing heavily.

4. Get the right footwear. Pick the shoe to match the sport, not to be fashionable. For court sports such as badminton, squash, and tennis, choose a regular flat heel for better balance. For jogging, select a well-cushioned shoe. For basketball you might consider a boot-type shoe instead of a low cut.

5. Keep an eye on the weather. You should exercise all year-round but you should also exercise common sense. In summer, avoid the heat of the noonday sun and

confine your activities to the cooler times of day. In a warm environment drink water, 1-2 glasses, 15 to 30 minutes prior to the activity. If you are thirsty during the activity, have a drink of water.

6. Compete with yourself. Everyone inherits a different genetic package. Some people are simply born with more athletic ability; your neighbor may have the genes of an Olympic athlete. It's embarrassing and discouraging to fall by the wayside while your partner goes jogging merrily on. So for the first six weeks at least, do your exercising alone. In fact there's no need to be competitive, ever! If you must have companionship, make certain it's with someone at the same level of fitness as yourself. And don't try to finish the final 200 yards in a blaze of glory. It's more likely to be a fizzle.

7. Be able to hear your breathing.



Two ways to go

To make it simpler for you to pick a physical activity that matches your age, ability and inclination, we've established two different methods. Both are concerned with increasing the ability of your heart muscle to pump blood, to control blood pressure and decrease life-threatening and debilitating risk factors.

You'll notice that most people accomplish this by exercising the legs, one of the largest groups of muscles in the body.

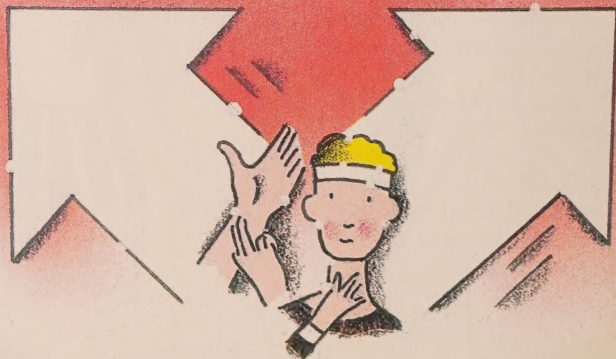
No matter which method you eventually choose to follow, you should start with at least six weeks of Method I. Depending on your age and the kinds of things you like to do, you may decide to stay with Method I forever. There is a suggestion that Method II for those under 55 is more beneficial than Method I with regard to protecting the heart. Both methods are helpful in decreasing the risk factors posed by lack of exercise, such as high blood pressure, obesity, osteoporosis, (a bone

weakening disease), and high blood fat levels.

Now before going into these methods further, it's important that you learn to measure your exercise heart rate. This is an important tool you have to monitor how physically active you are – and how active you should be. It tells you how your body is responding to exercise: when to slow down, when to speed-up, when your rate of exercise is just right for you.

To measure your exercise heart rate, jog easily on the spot for a couple of minutes, or climb some stairs. Then feel along the thumb side of your wrist, or press lightly against the side of your neck with two fingers (see diagram). Count the number of beats in ten seconds, multiply by six, and this is your exercise heart rate. Do this the moment you stop exercising, not two minutes later, or the result will have a large error in measurement.

Two ways to take your pulse.



OK? Now, read on. And remember, even if Method II is your goal, use Method I for at least six weeks.

Method I. This technique is used to increase the length of time you can be active – that is, your endurance. To start, plan to be active for at least five minutes daily. As a final goal, work towards an hour or two. Pick an activity that works your pulse rate up to the range shown on the chart. Your rate and depth of breathing will increase correspondingly. There is some

evidence that Method I is as good, if not better than Method II (more vigorous exercise) in reducing blood pressure for those with moderate high blood pressure.

Choose from these or other similar activities: brisk walking, gardening, swimming, shuffling (very slow jogging), hiking, golf on a hilly course, cycling, dancing, skating, snowshoeing, curling (slow sweeping), mild doubles tennis, doubles badminton, slow cross-country or downhill skiing.

EXERCISE HEART RATE AND BREATHING

Age	20 - 30	31-40	41-50	51-60
Lower Limit	110 beats/min	110 beats/min	96 beats/min	90 beats/min
Upper Limit	150 beats/min	138 beats/min	126 beats/min	114 beats/min
#of Beats in 10 secs.	approx 19 to 25	approx 18 to 23	approx 16 to 21	approx 15 to 19

TALK TEST

Lower limit	Easy to carry on a conversation
Upper limit	Capable of carrying on a conversation

BREATHING SOUNDS

Lower limit	Can just hear your breathing
Upper limit	Can hear your breathing readily

N.B. For some of us heart rate is not a good enough indicator of effort. For Method I you should feel comfortable, be able to hear your breathing and be able to talk at all times.



Method II.

This method, a more vigorous program, will also improve your endurance. Its main difference from the first method is that it puts more emphasis on your maximum ability to deliver oxygen to the muscles (maximum oxygen uptake). Plan for at least five minutes a day to start. As a final goal work toward 30 minutes.

Choose from these or other similar activities: jogging, squash, basketball, running, soccer, field hockey, judo, cross-country skiing, downhill skiing, canoe tripping (portage), hockey, curling (vigorous sweeping), singles tennis, singles badminton or fitness trail hiking.

(Note! Not for beginners. First spend six weeks in Method I activities).

EXERCISE HEART RATE AND BREATHING

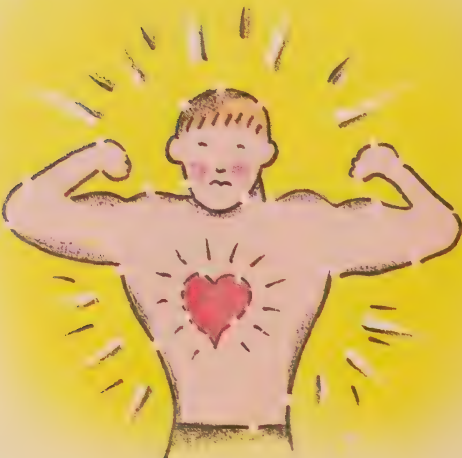
Age	20 - 30	31-40	41-50	51-60
Lower Limit	144 beats/min	132 beats/min	120 beats/min	108 beats/min
Upper Limit	174 beats/min	162 beats/min	150 beats/min	138 beats/min
#of Beats in 10 secs.	approx 24 to 29	approx 22 to 27	approx 20 to 25	approx 18 to 23

TALK TEST

Lower limit	Capable of carrying on a conversation
Upper limit	"Just" capable of carrying on a conversation

BREATHING SOUNDS

Lower limit	Can hear your breathing
Upper limit	Heavy breathing but no wheezing



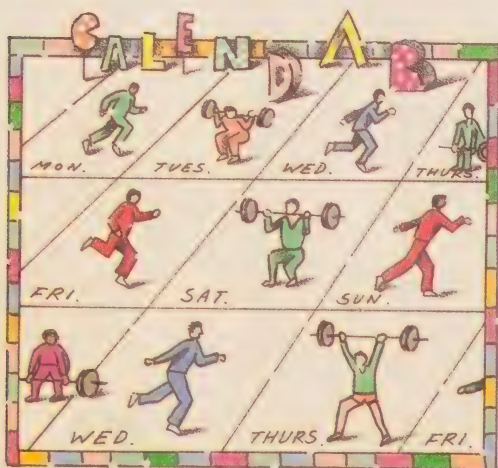
In using the tables for Methods I and II, it's important to remember that the combination of heart rate and voice is your guide to whether you're exercising properly. If the heart rate is slower than that given for your age, speed up your activity. And even more important, if your heart rate is faster than that shown on the chart, slow down your activity. Be able to talk while you are exercising.

N.B. For some of us heart rate is not a good enough indicator of effort. For Method II at the lower limit, you should feel comfortable, notice perspiration within 10-15 minutes, hear your breathing and be capable of carrying on a conversation while exercising. At the upper limit you should be just capable of carrying on a conversation.

You'll notice that we've suggested at least five minutes of activity ever day – to

start. That's the absolute minimum if you want to increase your endurance, and the ideal is something more like 30 minutes a day for Method II. But if you feel you haven't half an hour every other day to spare, do what you can – five, ten or fifteen minutes a day is better than nothing.

It's wise to alternate your activities, especially if you're working in Method II. Be vigorous one day, moderate to light the next. A suggestion is to perform one hour of light activity (select from Method I) four days a week (Monday, Wednesday, Friday, Sunday) and for the three other days be moderately active (select from Method II: Tuesday, Thursday, Saturday). The exercise period (30 minutes) can be broken up, five minutes on, five minutes off, and performed at different times of the day. Adapt your programme to your time table.



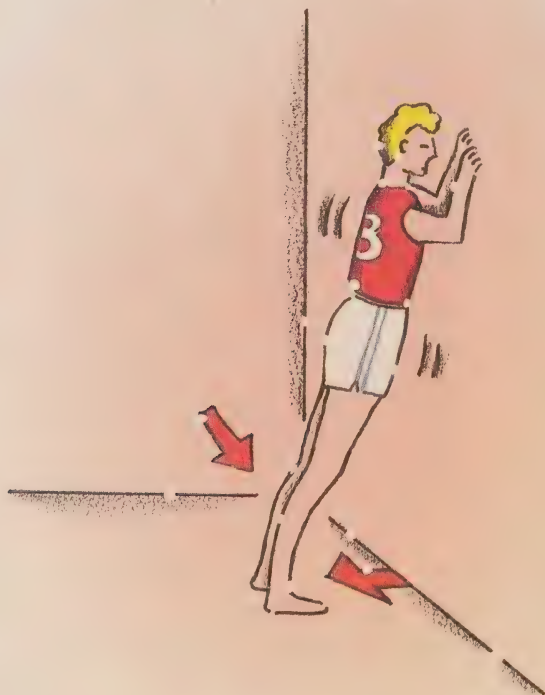
**Select an activity from
Method I.**

(increase exercise time to an hour)

This will give your joints, muscles and tendons a chance to recover. Also, alternating activities will prevent boredom and muscle soreness. As they say, a change is as good as a rest.

For best results, take three or four minutes before your exercise period to warm-up. Shuffle or jog, and do a few stretching exercises. For example, with heels on the floor and chest against the wall, slide feet back until you feel tightness in the backs of your legs. Hold this position for 15 seconds before you start your program.

After exercising, take a few minutes to warm-down. To prevent light-headedness, walk around for two or three more minutes and repeat stretching and flexibility exercises. Do not sit or stand still. Then try a shower. You'll feel great! Be careful with hot baths and hot tubs, the warm water can promote increased blood flow to the skin and with warm muscles still receiving blood you may become light headed and faint.



When you exercise – act your age!

Your exercise program will, of course, vary with your condition. In this section we suggest some courses of action for different age groups. But for every age, there are general rules you should follow. Basically, these are the same rules you'll find on page 5 (Six Rules for Everyone), but they are so important it won't hurt to go over them again.

1. Begin slowly.
2. Be capable of talking while you're exercising.
3. If you're wheezing, you're going too hard.
4. Get the right footwear for your chosen activity.
5. Remember, weather affects your ability. Avoid noonday sun in summer.
6. Don't feel you have to compete. And to these we might add:
7. If you choose a bon-jarring activity (basketball, tennis, etc.), do something less vigorous on alternate days.
8. Do something active every day! Make it a habit.

2-5 years

Children in this age group are lively, eager, and restless. They seem to be in perpetual motion and they need vigorous activity, but they tire quickly and, in the beginning, need frequent, brief rest periods. They also recover quickly. Since this age group has a short attention span, physical-activity lessons should be short and frequent. Thus, a twenty-minute activity session each day is better than three forty-minute periods a week.

● within reason let the young child explore. Playpens and "strapped-in-chairs" while safe are very limiting and inhibit muscular activity – unless they are climbing in and out of them.

● promote hanging from bars – hand over hand, walking

● short runs, forward, backward, sideways

● rolling on back, stomach, getting up, rolling on ground again

● roll a ball to them (ping pong ball or some other light ball) – have them roll it back – kick a ball – strike a ball with a light bat or child-size hockey or field stick

● teach them to blow bubbles in the bath tub (warm water) – see if you can get them to place their head in for a few seconds (after you) (leading up to a learn to swim programme)



6 – 10 years

Children in this age group are constantly moving. They seldom walk sedately when more interesting forms of locomotion can be explored. Although most activities are done on an individual basis, the children may be ready to co-operate in small groups for short periods of time. They need daily sessions of vigorous movement in which the emphasis is primarily on large-muscle activity and secondly on fine-muscle co-ordination.

● we now are beginning to realize that the experiences a child has influence his later life considerably. Activity habits are more likely to be maintained in adulthood, if started as a child. We have our highest endurance fitness level by age 11 and thereafter begin to decrease. Children at this age should by participating in a vast array of activities, from dance to spring-board diving. As they are enthusiastic and most fit – they are likely to enjoy success in most activities if the activities are planned with small steps and child-size equipment and if the appropriate space is used.

● have the child stay in the activity long enough to acquire the basic skills (extrinsic motivation can be very useful here – there is nothing like a “T shirt”).

● activities to encourage are swimming, soccer, throwing, catching, team handball, hitting a ball with a bat and a hockey stick, running, running backwards, cycling, skating, skiing, and tumbling

● our upper body strength is very minimal. Much can be done to improve it. Can your child do one pull-up? Encourage them to go hand over hand on the monkey ladder bars, “shinny up” a pole, climb a rope, or do one (or more) chin-up at the local park. This fitness aspect could save their life (getting out of a hole, or into a boat). It will also ensure that they can get up easily should they fall while skiing or skating, and so they might try it again another day. Sports such as gymnastics, track and field and swimming are likely to become a positive experience with improved upper body strength.

11 – 15 years

● encouragement, and facilitation are still required at this age, especially if success has not been readily achieved earlier. If involved in team or individual activities, have your child participate at the level they can enjoy success. Encourage them to join sports clubs or recreation groups. Your school can and should provide the basics. If not see the principal - He can help your child.

● As cardio-respiratory endurance begins to decrease at this stage, it is important to encourage the young person to engage in large muscle activities (activities that use the legs) at least for an hour a day. If they are fortunate enough to get involved with a team sport, encourage them. The cardio-respiratory fitness will develop as a side benefit and the joy of the game will remove some of the “work” of being fit.

- continue to encourage sound dietary habits with a variety of foods.
- foods with sources of calcium such as milk and cheese are important to increase bone mass and to offset the bone fragility disease called osteoporosis. The most important step we can take is to ensure the development of as much large bone mass as possible when we are young, for in our later adult years this strength decreases. The higher the bone mass when young the longer it will take to weaken when we get older.
- encourage upper body activities. Do not forget the pushup or chin up. Can you still climb a rope?
- at school participate daily in physical and health education and intramural and inter-school activities.

17 – 19 years

Attempt to maintain the fitness you had at 11. Some goals you might have are:

- be able to jog 2 kilometers while talking to a partner
- be able to pull yourself up twice
- be able to perform 10 pushups
- start to improve your skill in carry-over activities such as racquet games, skiing, swimming
- continue playing your team sport as it will become much more difficult after you leave secondary school
- do not let your weight go up

20 to 30 years

- Begin with a slow jog increasing the pace until you maintain your exercise heart rate within the limits of Method I for 15 minutes a day.
Do this for three weeks.
- At the end of three weeks decide on your eventual preference – Method I or Method II.
- If you decide on Method I, you can now substitute other activities for the jogging you've been doing.
- If you're interested in Method II, gradually increase your jogging pace until your heart rate is within the limits of Method II. For the fourth week, you might jog for 15 minutes every other day. For the fifth and sixth weeks, increase the jogging time to 25-30 minutes. This will increase your endurance for the games you are about to play. Remember to alternate your activities.

31 to 49 years

- For the first two weeks, try something like one minute of jogging followed by one minute of walking – then back to the jogging until you've completed 16 minutes altogether. After two weeks increase the intervals to two minutes of jogging followed by two minutes of walking. Repeat the intervals until you complete 30 minutes of alternate jogging and walking.



50 to 70 years

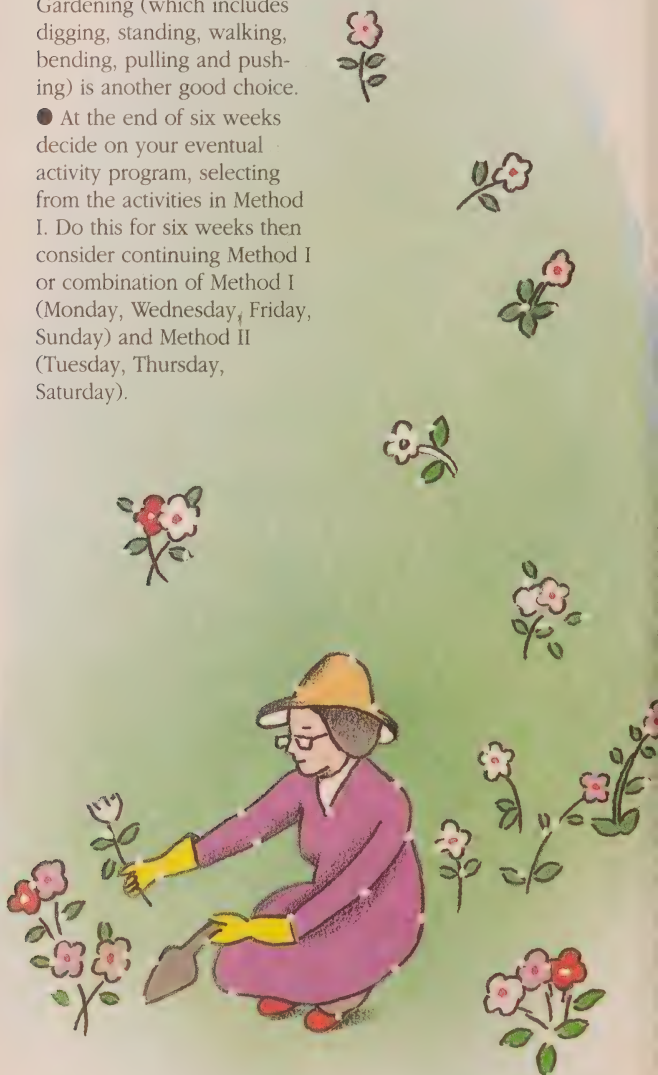
● Start by increasing the amount you walk every day. Work up to an hour a day, even if it's broken into half-hour or shorter periods. This may be easier than you think. It may simply mean walking to the subway or bus stop instead of accepting a ride, or walking to a stop a little farther away from your home. You could take a walk during lunchtime, or in the evening. Gardening (which includes digging, standing, walking, bending, pulling and pushing) is another good choice.

● At the end of six weeks decide on your eventual activity program, selecting from the activities in Method I. Do this for six weeks then consider continuing Method I or combination of Method I (Monday, Wednesday, Friday, Sunday) and Method II (Tuesday, Thursday, Saturday).

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● Check with your physician, and continue doing as much as you comfortably can. Remember to be able to talk while you are active.

● Try to ensure part of your activity program is active enough so that you can hear your breathing – this will increase and maintain heart strength.



Games people play . . . and other activities

Each different sport or activity has its own contribution to make to your fitness level.

There's no need to push yourself beyond your capacity! A game of golf can use up more calories than a game of football. Although the more active sport may use up 2500 kilojoules or 600 Calories in an hour, the three-hour golf game will burn up 700 Calories or 3000 kilojoules.

Many people will choose team sports or competitive games, simply because they enjoy the social aspects. If this is your preference, well and good, but don't let the competitive spirit drive you into overexertion.

Walking, Hiking and Shuffling (or slow jogging). These are the simplest and most convenient exercises, and they'll keep your joints in good functioning condition. Walking will benefit your blood pressure and, if done at a brisk pace, your heart strength. Any walking is better than no walking. Make it fun: walk or jog the scenic route. Discover your parks and playgrounds. Inspect historic sites. Take a camera. Climb the stairs whenever possible. Soon you'll forget to count the time. And in your golden years, you'll be glad you never lost your ability to walk!

Cycling. This has the great advantage of providing not only exercise, but a cheap form of transportation for most of the year. It's a skill most people learn in childhood and never forget. It provides good exercise for the large leg muscles, and increases heart activity without the bone-jarring effects of some other sports. It may not, however, give sufficient exercise to some other joints, such as the shoulders. And if too much use is made of labour-saving gears, possibly cycling will not increase the heart rate enough.

Tennis. A singles game is more demanding than doubles. Even if the game is pursued with less-than-strenuous zeal, it will provide a healthy stress on the joints and assist in their proper function.



Swimming. This is a good all-round exercise that avoids sudden shifts of weight and jarring of bones. It's helpful in burning up Calories and providing flexibility. Make sure for part of your workout your exercise heart rate reaches the required level. For over-all fitness, swimming should be combined with one or two other exercises from your chart. It is this activity that enables you to carry on your program when you have a mechanical injury such as a sprained ankle or tendon injury.

Downhill skiing. The thrill aspect of skiing makes it a popular choice for many people. It's necessary to choose a level of skiing that maintains the correct exercise heart rate. For those who choose Method II, short turns of two or three minutes, repeated five or six times, will suffice. Skiers in tip-top shape might incorporate five minutes of herringbone or side-stepping up a grade. As with other activities, if you are sufficiently vigorous for at least 10 to 15 minutes, then you can include this activity in Method II.

Pre-skiing as well as maintenance programs during the season involving cycling and/or jogging and/or cross-country skiing and stretching activities are recommended to provide a reserve of energy to offset that injury-prone ski period, the late afternoon.



And other kinds of fitness

So far, the major concerns of this pamphlet have been the exercises that affect the heart, respiratory muscles, and legs. But there are other aspects of fitness – strength, for instance, and flexibility. Here are some exercises that should help. Nearly all of them will also aid in preventing lower back pain.

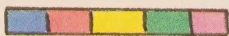
Pushing. The familiar push-up is good for strengthening stomach, as well as arm and shoulder muscles. From our diagrams, select a push-up which you can perform eight times with comfort, and another four times with a bit of difficulty. When you've mastered that push-up move on to another version that once again gives you difficulty during the eighth to twelfth repetitions.

Three kinds of push-ups

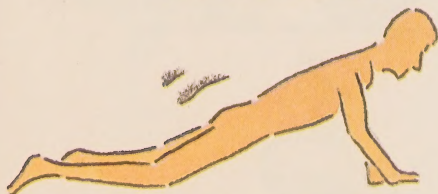
Easy



Pulling. Lifting of all kinds, properly done, increases pulling strength. Hanging from an exercise bar also exercises your pulling muscles. For something more demanding, start pulling upward. Stop when you begin to feel strain, and then lower yourself back to the hanging position. Repeat three times. Don't hold your breath. In time you may be able to pull yourself right up to the bar once or twice.



Difficult



More difficult



Stomach strength.

Strong stomach muscles not only keep your stomach flat and firm, they also help prevent backache by giving good support to the spine. Here are three more exercises that will aid your abdominal muscles.

1. Lie down on your back, preferably on a couch or bed. Bend your knees and slowly lift your back and shoulders off the couch about six or eight inches, thus contracting the stomach muscles. Return slowly to the couch. Repeat fifteen times. (Fig. A.)

2. Lie on back with knees bent and feet flat on floor. Pull knees to chest and lower. Do not raise head (Fig. B).

3. While sitting in an office or a car, pull in your stomach muscles, hold while breathing four times. Repeat.

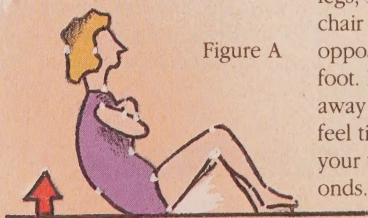


Figure A

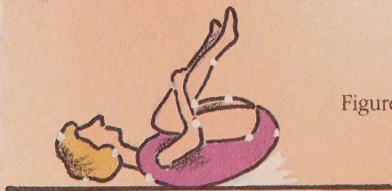


Figure B



Figure C



Figure D

Flexibility.

The less we do, the less flexible we become. Activities like gardening and swimming, housework because they use many different muscles, are excellent for maintaining flexibility. Here are some other suggestions.

1. Bring arms up, bent at the elbows. Press them back and then push your chest forward. This can counteract a tendency to stoop (Fig. C). Keep your ears behind your shoulders.

2. Lie on back. With knees bent and feet flat on floor, tilt pelvis so that the middle of your back is pressed down to the floor. Relax. Place hands on belt line (Fig. D).

3. To stretch the back of the legs see page 8.

4. To stretch the front of the legs, hold on to a desk or chair with one hand. With the opposite hand, grab the other foot. Pull your heel up and away from buttocks, until you feel tightness in the front of your thigh. Hold for 15 seconds. Repeat with other leg.



TENNIS



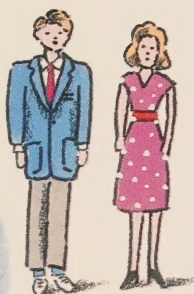
AEROBICS



BICYCLE



EXERCISE



RUNNING



SWIMMING



SKIING



WEIGHT
LIFTING



BASEBALL



HOCKEY

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